# CLEAN ENERGY FINANCE GUIDE FOR RESIDENTIAL AND COMMERCIAL BUILDING IMPROVEMENTS

## THIRD EDITION

**Prepared by the Finance Technical Assistance Team**

***Under contract to Oak Ridge National Laboratory for the U.S. Department of Energy***

BOA Task # 4200000342

DOE State Energy Program (SEP) and

Energy Efficiency and Conservation Block Grant (EECBG)

Program Recipients Technical Assistance Network (TAC)

DECEMBER 9, 2010

## Note to Users

In this Guide the term "clean energy" is used interchangeably (synonymously) with "energy efficiency and renewable energy," no matter whether those terms are spelled out or in the abbreviated form "EE/RE."

## Frequently Used Abbreviations

**ARRA:** American Recovery and Reinvestment Act of 2009

**CDFI:** community development financial institution

**DOE:** U.S. Department of Energy

**EE:** energy efficiency

**EECBG:** Energy Efficiency and Conservation Block Grant Program

**FI:** financial institution

**LRF:** loan loss reserve fund

**PACE:** property-assessed clean energy

**PUC:** public utility commission

**RE:** renewable energy

**RFP:** request for proposal

**SEP:** State Energy Program

## Acknowledgments

The chapters in this Clean Energy Finance Guide, Third Edition, are the result of a tremendous effort from members of the U.S. Department of Energy's Finance Technical Assistance Team, lending their expertise and skills as writers and reviewers under the direction of Chris Lohmann of the Financial Market Development Team, U.S. Department of Energy. The expert team includes, among others:

John MacLean and Dan Clarkson, Energy Efficiency Finance Corporation

Neil Zobler and Bob Barton, Catalyst Financial Group, Inc.

Matthew H. Brown and Heather Braithwaite, Harcourt Brown Energy & Finance

Jeanine Hull, Strategic Energy Advisors, Inc.

Darin Lowder, Ballard Spahr LLP

Mark Zimring, Lawrence Berkeley National Laboratory

Ken Hejmanowski and Cisco DeVries, Renewable Funding

Jeff Hughes, University of North Carolina

Howard Banker, Energy Programs Consortium (EPC)

Matthew H. Brown is overall coordinator of the Clean Energy Finance Guide, and editorial/production services are provided by Jane Otto of The Cadmus Group, Inc.

## CLEAN ENERGY FINANCE GUIDE, THIRD EDITION

# Contents



**with multiple attachments*

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **1603 Grant** | For nearly all technologies and project types that qualify under either the Production Tax Credit (PTC) or the Investment Tax Credit (ITC), section 1603 of the American Recovery and Reinvestment Act of 2009 (ARRA) provides funding to reimburse applicants for a portion (either 10% or 30%) of the cost of eligible property under the Internal Revenue Service Code. |
| **A "C" Corporation** | Corporations that are taxed as a stand-alone entity, meaning earnings may be subject to "double taxation" (once at the corporate level and again as dividends to the owners). C corporations may be able to obtain credit without the owner's personal guarantee if the corporation has done so in the past for a similar or larger lending amount and can show profitability and a strong balance sheet. However, most small business C corporations are required to give the personal guarantee of the owners in order to obtain financing, especially when the owner is needed to run the business. |
| **A Sub-Chapter S Corporation** | A Sub-chapter S corporation is not considered a tax paying entity (like a C corporation) and passes all profits (and losses) on to the owners. |
| **Accelerated Depreciation for Onsite Generation Equipment** | Under the Federal Modified Accelerated Cost-Recovery System (MACRS), businesses may recover investments in certain energy property through accelerated depreciation deductions. MACRS establishes "class lives" for various types of property, and a number of renewable energy properties (systems) are classed as 5-year properties. They include solar-electric and solar thermal property, wind property, geothermal property, combined heat and power equipment, fuel cells, and microturbines. If the property is leased to an Ineligible Entity, however, it is subject to an alternative (longer) depreciation schedule. |
| **ASHRAE Level I Audit** | Walk-through Analysis; Brief review of building systems with primarily qualitative results. |
| **ASHRAE Level II Audit** | Energy Survey and Engineering Analysis; Includes identification of energy efficiency measures with estimates of energy and cost savings for capital projects. |
| **ASHRAE Level III Audit** | Detailed Analysis of Capital-intensive Modifications; Includes more detailed calculations based on monitored end-use data or hourly building simulations. Also includes more detailed project specifications for retrofits. |
| **Bank Capital** | Banks can invest their own depository capital in clean energy lending projects if the banks feel that the return is sufficient, given their understanding of the risk involved in the investment. |
| **Bonds** | Bonds consist of many different types of funds. Some of the more common types of bonds are tax-exempt bonds that can fund investments in government facilities or, subject to many limitations, investments in certain private activities. Those are known as private activity bonds.<br><br>Another category is tax credit and tax subsidy bonds, the proceeds from the sale of which can be used to fund some energy efficiency and renewable energy projects. Qualified Energy Conservation Bonds (QECBs) are one such example. |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **Bullet Bonds** | A noncallable, regular coupon-paying debt instrument with a single repayment of principal on the maturity date. Issuers of bullet bonds pay only interest during the life of the bond and pay all of the principal back at maturity. |
| **Callable Bond** | A bond that can be redeemed by the issuer prior to its maturity. Usually a premium is paid to the bond owner when the bond is called. It is also known as a "redeemable bond." |
| **Call Provision** | A provision on a bond or other fixed-income instrument that allows the original issuer to repurchase and retire the bond(s). If there is a call provision in place, it will typically come with a time window under which the bond can be called; and a specific price to be paid to bondholders and any accrued interest are defined. Callable bonds will pay a higher yield than comparable noncallable bonds. |
| **Capital Provider** | Manages capital source funds. |
| **Capital Source** | The capital source provides the funding to pay for clean energy projects. |
| **CDFIs** | Community Development Financial Institutions (CDFIs) are nonprofit lenders that aggregate lending capital from a mix of federal or state government, foundation, and private capital sources and relend that money to targeted groups. |
| **Community Reinvestment Act (CRA) Funds** | Commercial financial institutions often meet their regulatory responsibilities under the federal Community Reinvestment Act (CRA) by placing funds at a low interest rate with CDFI lenders. Like foundation program-related investment funds, CRA investments often earn a below-market rate of 2% to 3%. In turn, CDFI lenders are expected to lend these funds at this same low rate plus a small interest rate spread that typically ranges from 2% to 3%. |
| **Corporations** | Corporations are considered natural persons under the law and can enter into their own contracts (including loans). A corporation's legal exposure is limited to its balance sheet, which excludes the owner's personal assets. |
| **Credit Enhancements** | A credit enhancement is anything that improves the chances that financing will be repaid to the capital provider. Sometimes a credit enhancement involves setting aside some ARRA funds to cover potential losses in case of nonpayment.<br><br>A credit enhancement can take one of several forms: loan loss reserves, loan guarantees, loan loss insurance, debt service reserves, and subordinated/senior capital structure. |
| **Credit Unions** | Credit unions are nonprofit organizations with a charter to serve the financial needs of specific parts of a community, such as an employer group, a group of graduates of a particular college, or some other defined group of people. |
| **Credit Union Capital** | Like banks, credit unions invest their capital in projects for which they feel the return will justify the risks as they understand them. Credit unions tend to be smaller than most banks and often more closely tied to particular communities or constituents. Credit unions may also have less capital to lend and a smaller network of branches than the large banks. |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **Davis-Bacon Act** | Section 1606 of the Recovery Act specifically requires that all laborers and mechanics performing work on any project "funded directly by or assisted in whole or part by" Recovery Act funds be paid prevailing wages as determined by the Secretary of Labor. |
| **Debt Service Reserve Fund (DSRF)** | A DSRF covers bond debt service (i.e., payments made to bond investors) in the event of late payments or defaults by participants. This is typically an amount set aside with a trustee. |
| **Debt-to-Income Ratio** | Debt-to-income (DTI) ratio is calculated using total debt service and gross income. A typical ratio is 40%; but grantees can argue for and some FIs have agreed to higher DTI ratios, given the fact that energy cost savings from the EE/RE project will improve the homeowner's ability to pay their principal and interest obligations. In some markets, the acceptable DTIs are as high as 45% to 50% for residential EE loans. |
| **Emissions Allowance Revenues** | States that receive revenues from their participation in a cap and trade structure (e.g., the Regional Greenhouse Gas Initiative (RGGI)) can use those funds to seed clean energy finance programs. |
| **Energy Audit** | The process wherein an expert reviews a property's current energy usage, conducts an onsite inspection of the property and its systems (e.g., lighting, HVAC, processes, etc.), and makes recommendations for reducing energy usage. |
| **Escrow Account** | An account into which the ARRA grantee deposits the loan loss reserve funds. Rules for disbursements of funds from the reserve account are defined up front and tied to the definition of "Loss" and "Event of Loss." These accounts can be held by the same FI that is doing the lending, but the rules for transfers and disbursements have to be clear and unambiguous. The FI assumes responsibility as a fiduciary for applying the rules. |
| **FHFA** | Federal Housing Finance Agency; the regulator over Fannie Mae and Freddie Mac, which are the government-sponsored enterprises (GSE) chartered by Congress with a mission to provide liquidity, stability, and affordability to the U.S. housing and mortgage markets. |
| **First Lien Position** | A lien on property, in the form of a first mortgage lien or a tax lien, establishes the right of the lien holder (almost always the lender) to make a claim on the proceeds from the sale of foreclosed property. The best lien position to be in is "the first priority lien." It means that, if a bank holds a mortgage on a home for $250,000 and a foreclosure sale yields $270,000, then the bank with its first position lien gets the full $250,000 and any other creditors (lenders) in second or third position must fight for the remaining $20,000. This would include the lenders who provided capital for clean energy improvements and are not in that first lien position. |
| **First Losses** | These are the losses on individual loans covered by a loan loss reserve. Typically, a loan loss reserve covers first losses up to a prespecified amount, and the partner financial institution covers all other losses. |
| **Fixture Filings** | In the event of foreclosure, UCC-1 Filings allow the entity that holds a loan to repossess the property/equipment that has been financed. |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

**General Partnership**

A general partnership in civil law refers to the participation of two or more individuals in a common business activity. Individuals are personally liable.

**Government Lenders**

Government lenders can include state energy offices, or state-chartered finance authorities, or their local government equivalent.

**Interest Rate Buydown**

A reduction in the interest rate that will be paid by borrowers as a result of an up-front payment by a grantee to the lender. This up-front payment is based on the difference between the sum of all principal and interest payments that a lender would be projected to receive at the market-based interest rate and the sum of payments that the lender would receive from the target (incentivized) interest rate—adjusted for the time value of money.

**Investment Tax Credit**

The Investment Tax Credit (ITC) in section 45 of the Internal Revenue Service Code is available for EE/RE improvements. It is equal to 30% of the value of the capitalized basis costs to develop, design, build, and install systems that—

1. Use solar energy to generate electricity, or to heat, cool, (or provide hot water for use in) a structure (building), although heating swimming pool water does not qualify.
2. Consist of fuel cell property with nameplate capacity of at least 0.5 kW and an electricity-only efficiency of at least 30% (up to $1,500 per 0.05 kW of capacity).
3. Consist of small wind property with a nameplate capacity of 100 kW or less; or
4. Use fiber optic distributed sunlight to illuminate the inside of a structure.

Also available is an ITC equal to 10% of the value of the capitalized basis costs to develop, design, build, and install systems for the following types of energy property: (1) geothermal electric systems, (2) micro-turbines (stationary plant of less than 2 MW with an electricity-only efficiency of 26%), (3) combined heat and power systems, and (4) geothermal heat pumps.

**Investment-Grade Audit (IGA)**

A very rigorous audit, typically undertaken to evaluate a potential upgrade to a facility's energy infrastructure wherein it must compete for capital funding with nonenergy-related investments. The projected operating savings from the implementation of the project must be developed such that they provide a high level of confidence.

**Leasing and Lease Financing**

A lease is in essence an extended rental agreement under which the owner of the equipment allows the user to operate or otherwise make use of the equipment in exchange for periodic lease payments. In leasing terminology, the owner is the “lessor,” and the user is the “lessee.”

Equipment leasing is particularly favored by many small businesses, which often have fewer options because of limited capital.

The two primary types of leases are operating and long-term or "capital" leases. Operating leases are characterized by short-term, cancelable terms; the lessor bears the risk of obsolescence and enjoys such benefits as depreciation, including, if applicable, accelerated depreciation. Those leases are generally preferable when the company needs the equipment for a short

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| | period of time. Under the usual terms of operating leases, a lessee can usually cancel the lease, assuming prior notice, without a major penalty.<br><br>Long-term, "capital," non-cancelable leases, also known as full payout or ***financial leases***, are sources of financing for assets the lessee company wants to acquire and use for longer periods of time. Most financial leases are "net" leases, meaning that the lessee is responsible for maintaining and insuring the asset and paying all property taxes, if applicable. Financial leases are often used by businesses for expensive capital equipment. |
| **Leverage** | Leverage refers to the amount of private capital that a grantee might attract to a clean energy financing program by offering a loan loss reserve or other credit enhancement. Leverage can also refer to the total amount of EE/RE project investment that a grantee can support with its lending program. |
| **Limited Partnership** | This is a form of corporation wherein financial exposure (liability) is limited to the assets of the Limited Partnership and the general partner. |
| **Liquidity** | Refers to the ability to sell a loan or a loan portfolio to an investor. A lack of liquidity means that lenders who make loans must hold on to those loans until they mature. |
| **Loan Guarantee** | A loan guarantee covers the entire amount of a capital provider's potential losses on a portfolio of loans. A guarantee differs from a loss reserve fund because it is not capped at the amount of money set aside in the reserve. Federal statute does not allow SEP or EECBG funds (and by extension ARRA funds) to be used as a loan guarantee. The federal government provides loan guarantees through the U.S. Departments of Agriculture and Energy, as well as several Small Business Administration programs. |
| **Loan Loss Insurance** | Loan loss insurance is a private insurance product that lenders can purchase or a grantee can purchase on behalf of a lender. Loan loss insurance is similar in some respects to a loan loss reserve in that the insurance covers a portion of the total losses (in case of no repayment), up to some capped amount. The difference is that instead of setting funds aside in a reserve account to cover the losses, the grantee or lender pays an insurance premium to a private insurer. Loan loss insurance is not easy to secure at the moment. |
| **Loan Loss Reserve Fund (LRF)** | A loan loss reserve fund provides partial risk coverage to lenders—meaning that the reserve will cover a prespecified amount of loan losses. |
| **Loan Tenor** | The length of a loan, from loan closing until its maturity. |
| **LRF Agreement** | An agreement between the financial institution partner(s) and the ARRA grantee, which addresses the deposit and use of the loan loss reserve fund monies. |
| **OCC** | Office of the Comptroller of the Currency, the main regulator of national banks; OCC policies and regulations can affect commercial lending. |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **Off Balance Sheet** | This term describes a case in which assets or liabilities do not appear on the balance sheet, and the business owner can treat the entire financing payment as a business expense. Treatment as an off balance sheet item reduces the business' taxable profit and, consequently, its tax liability. Off balance sheet treatment also typically means that energy projects do not trigger restrictive lender covenants that may prohibit businesses from assuming new debt obligations. |
| **On-Bill Repayment** | On-bill repayment means that the principal and interest notification (the amount due) appears on the monthly utility bill of the entity responsible for paying the utility bill, and the borrower repays the principal and interest as part of the regular utility bill payment. |
| **PACE** | The property-assessed clean energy (PACE) model is an innovative mechanism for financing energy efficiency and renewable energy improvements on private property—commercial or residential.<br><br>PACE programs allow local governments, when authorized by state law, to fund energy improvements on commercial and residential properties. |
| **Pooled Bond** | In the pooled bond approach to financing clean energy projects, loan applicants submit their applications, and those applications are accepted and aggregated. Applications can be approved during this aggregation period, but are not given permission to proceed to implementation. When a sufficient pool of requested project funding has been assembled, then a bond is sold to cover and fund all the included projects. |
| **Power Purchase Agreements** | A legal contract between an electricity generator (provider) and a power purchaser (host). The power purchaser purchases energy, and sometimes also capacity and/or ancillary services, from the electricity generator. Such agreements play a key role in the financing of independently owned (i.e., not owned by a utility) electricity generating assets. |
| **Production Tax Credit** | Renewable electricity Production Tax Credits (PTCs) in section 45 of the Internal Revenue Code are available for the domestic production and sale of electricity from qualified sources and are equal to either $0.022/kWh ($0.015 adjusted for inflation each year; $0.022/kWh is the current value), or half that amount for certain types of power-producing systems during their first 10 years of operation. |
| **Qualified Energy Conservation Bonds (QECBs)** | Qualified Energy Conservation Bonds (QECBs) are debt instruments; they are not grants. "Qualified issuers" can issue QECBs to fund "qualified energy conservation projects." These bonds may be structured as either a "tax credit" bond in which the bondholder receives a tax credit as a part of its return together with taxable interest, or a "direct payment subsidy option" in which the bondholder receives taxable interest and the issuer receives a direct subsidy (Direct Payment) from the U.S. Treasury for a portion of the interest paid to the bondholder. Virtually all QECBs are expected to be issued using the direct payment subsidy due to the relative benefits of these options and the lack of investor appetite for tax credit bonds. |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **Qualified Energy Conservation Project (under QECBs)** | QECBs may be used to fund capital expenditures for the following conservation purposes/projects:<br>1. Reducing energy consumption in publicly owned buildings by at least 20%.<br>2. Implementing green community programs (including loans grants or other repayment mechanisms).<br>3. Developing rural capacity, specifically involving the production of electricity from renewable energy resources.<br>4. Improving any "qualified facility," including for example, solar, wind energy, geothermal, and biomass facilities.<br>5. Supporting research facilities, research grants, and research in the (a) development of cellulosic ethanol or other nonfossil fuels, (b) capture and sequestration of carbon dioxide produced by fossil fuels, (c) expanded efficiency of existing technologies for producing nonfossil fuels, (d) automobile battery technology or other fossil-fuel reduction technology in transportation, and (e) technologies to reduce energy use in buildings.<br>6. Implementing mass commuting and related facilities that reduce energy consumption and pollution.<br>7. Designing/Running demonstration projects designed to promote the commercialization of (a) green building technology, (b) conversion of agricultural waste to fuel, (c) advanced battery manufacturing technologies, (d) technologies to reduce peak use of electricity, and (e) technologies for the capture and sequestration of carbon dioxide produced from making electricity.<br>8. Launching public education campaigns to promote energy efficiency. |
| **Qualified Issuer (under QECBs)** | A qualified issuer is a state, local, or tribal government that has been allocated the right to issue QECBs by the federal government. Local governments include municipalities and unincorporated counties. Under the federal tax rules, certain authorities may issue the QECBs on behalf of state, local, and tribal governments. |
| **Qualified Tax Credit Rate (QTCR)** | The QTCR is set daily by the U.S. Treasury. |
| **Residential Tax Benefit** | A number of federal tax benefits are available for individual taxpayers installing EE and RE equipment in their homes. Individual taxpayers purchasing or installing home envelope or home heating/cooling equipment may qualify for a tax credit equal to 30% of the cost of eligible equipment up to a $1,500 tax credit per home. |
| **Secured Loan** | A secured loan is a loan in which the borrower pledges some asset (e.g., a car or property) as collateral for the loan. In the residential sector, such loans are typically in excess of $15,000. Almost all loans outside the residential sector are secured. |
| **Serial Bonds** | Serial bonds are structured so that a portion of the bonds matures at regular intervals (thus both interest and principal are paid back throughout the life of the overall bond). |

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

**Soft Lien/Lien at the Meter** — The threat to disconnect utility service in the event of nonpayment of the utility bill.

**Sole Proprietorship** — A type of business entity in which there is no legal distinction between the owner and the business. Profits (and losses) go directly to the owner and are reported on his/her personal income tax returns.

**Specialized Lenders** — Nonbank finance companies that have access to capital from a variety of sources. Examples include the three Fannie Mae-qualified energy efficiency loan program lenders and the Electric & Gas Industries Association (EGIA).

**Subordinated/Senior Capital Structure** — A subordinated/senior capital structure allows two types of capital to be placed into a loan. The first one, subordinated capital (which could be provided by a grantee using ARRA funds), absorbs the potential first losses on a loan and might be set at 10% of the total loan amount. The second one, senior capital, does not absorb any losses until the subordinated capital is exhausted. This structure acts in some ways like a loan loss reserve and serves to attract the senior capital because the subordinated capital takes on the majority of the risk.

**Tax or True Lease** — A lease with a true “fair market value” purchase option, essentially a long-term rental agreement.

**Tax-Exempt Bond** — A bond, issued by a municipal, county, or state government, whose interest payments are not subject to federal income tax, and sometimes not subject to state or local income tax.

**Term Bonds** — Term bonds are similar to bullet bonds as the issuer pays only interest to the investor during the life of the bond—the difference is that term bonds can be structured to include call provisions. Call provisions give the bond issuer the right to purchase (or call) part or all of a bond issue at specified times. Whether call provisions are included in a bond’s structure is a matter of negotiation between the bond issuer and investor.

**Truth in Lending Act** — The Truth in Lending Act is contained in Title I of the Consumer Credit Protection Act (CCPA, 15 U.S.C.A. § 1601 et seq.). The CCPA is designed to assure that every customer who needs consumer credit is given meaningful information concerning the cost of such credit. The Truth in Lending Act requires that the terms in transactions involving consumer credit be fully explained to the prospective debtors. It sets forth three basic rules:

(1) A creditor cannot advertise a deal that ordinarily is not available to anyone except a preferred borrower;

(2) Advertisements must contain either all of the terms of a credit transaction or none of them; and

(3) If the credit is to be repaid in more than four payments, the agreement must indicate, in clear and conspicuous print, that "the cost of credit is included in the price quoted for the goods and services."

This law does not impose regulations on the advertising media, only on the prospective creditor. This Act is sometimes called Regulation Z or TILA.

## Glossary of Terms Used in the Clean Energy Finance Guide, Third Edition

| | |
|---|---|
| **Unsecured Loan** | Unsecured loans are loans that are not secured against the borrower's assets. |
| **Vendor Sales** | Many large equipment vendors offer financing programs to help promote the sale of their equipment. This is often handled through captive financing companies (a finance company generally owned by a manufacturer and occasionally a large distributor) at attractive rates. |

**CLEAN ENERGY FINANCE GUIDE, THIRD EDITION**

# Introduction

The Clean Energy Finance Guide for Residential and Commercial Building Improvements, Third Edition,[1] is designed to serve the needs of state, local, and tribal governments that have received federal State Energy Program (SEP) or Energy Efficiency and Conservation Block Grant (EECBG) Program funds from the U.S. Department of Energy (DOE). This Finance Guide focuses specifically on the ways that state and local grantees can use those funds, including funds provided by the American Recovery and Reinvestment Act of 2009 (ARRA) to create financing programs that support energy efficiency and renewable energy improvements.

Grantees, and technical assistance providers for those grantees, can use this Guide for—

1. Background information on different options available to establish financing programs.
2. Examples of sample or model program options to pursue.
3. Sample template documents such as contracts or requests for proposals (RFPs).
4. Modeling and spreadsheet resources to project cash flows or other relevant program results.
5. Information on federal requirements as they relate to energy efficiency financing programs.

The document addresses the needs of grantees that are developing financing programs for two different types of borrowers looking to make clean energy upgrades in their buildings: single-family, owner-occupied residential borrowers and commercial borrowers. A separate document is under development to assist grantees that are developing public sector energy efficiency financing programs using Energy Service Performance Contracting, and another document is underway to address the crucial elements involved in developing and operating an energy efficiency program.

This Finance Guide is not meant to be read straight through from cover to cover. Readers will likely decide to focus on a specific chapter or a specific section that meets their needs. The document avoids making specific recommendations, but instead offers a comprehensive set of processes, guidelines, and resources to help grantees design their own financing programs.

[1] The Third Edition, completed for a DOE workshop in mid-November 2010, was revised slightly and is being released more widely in December 2010.

**CLEAN ENERGY FINANCE GUIDE, THIRD EDITION**

# Executive Summary of Finance Guide Chapters

### *1 Primer on Clean Energy Lending: The Major Components and Options*

This chapter introduces the five major components of a clean energy lending product, one by one, and describes each one's main characteristics. The five components are lenders, repayment, capital sources, credit enhancements, and security. The chapter also illustrates the relationship between the components. Among them, the source of capital is particularly important. All other elements of the loan program revolve around the characteristics and needs of the capital source.

### *2 Possible Bonding Options for Energy Efficiency and Renewable Energy Financing Programs*

This chapter focuses specifically on bonding options. The first section begins with an introduction to traditional tax-exempt and taxable bonds, and then describes in more detail a suite of new bonding tools that came about as a result of the American Recovery and Reinvestment Act of 2009 (ARRA). The second section covers Qualified Energy Conservation Bonds (QECBs) in detail, as they are a specialized mechanism to fund clean energy projects.

### *3 Risk Assessment*

Chapter 3 presents a table highlighting potential risks of unsecured lending products and clean energy finance programs. For each identified risk, the table includes definitions and possible solutions (in brief) to lower the risk.

### *4 Federal Tax Issues Related to Energy Efficiency and Renewable Energy Projects*

Chapter 4 reviews the tax incentives (benefits) for financing programs that provide funds to individuals or organizations for the purchase of energy efficiency (or renewable energy-producing) equipment, systems, or products. The tax benefits can take a variety of forms, and they differ depending on whether the project is for commercial buildings or residential structures. Regardless of the form, the tax benefits remain distinct from the direct subsidies or rebates often provided by utilities, states, or local entities for energy efficiency (EE) and renewable energy (RE) efforts. This chapter also presents the factors that affect the type of benefit available.

### *5 Basic Concepts for Clean Energy Unsecured Lending and Loan Loss Reserve Funds*

The focus of this chapter is a loan loss reserve fund (LRF) structured to support single-family residential EE/RE lending. The primary goals and rationale behind an LRF are to attract a financial institution (FI), broaden access to finance for more borrowers, lengthen loan tenors, and reduce loan interest rates. The main characteristics of an LRF are a portfolio approach to credit, leverage, a financial institution partner, and secondary market support.

Chapter 5 also presents U.S. Department of Energy (DOE) guidance on the use of ARRA funds, residential EE loan terms, underwriting guidelines, and the impact of an LRF on those guidelines. The steps for developing a clean energy financing program with an LRF are described in detail; they include finance structuring and program design; preparation of a request for proposal (RFP) from financial institutions; and developing, negotiating, and closing on the implementing agreements. Key terms are explained, and the attachments provide additional guidance and examples.

### *6 Partners & Stakeholders: Roles and Potential Impact*

The organizations responsible for the implementation process of an EE/RE loan program are presented in Chapter 6. They encompass financing partners, advisors, and other interested parties. The first part of the chapter describes the different roles involved in moving money from the public sector and the capital markets to residential consumers taking on energy retrofit projects. Specialists are a key component of the success of lending programs, and this chapter describes them and their responsibilities. Rounding out the chapter is information on the organizations and stakeholders that do not necessarily handle funds directly but can influence the design of the program.

### *7 Path to Self-Sustainability*

The importance of making clean energy financing programs sustainable is addressed in Chapter 7. ARRA funds will eventually go away, and it is unlikely that funds of similar magnitude will be available in the future. This chapter presents five strategies to create self-sustaining programs: (1) prove clean energy finance as a profitable line of business for financial institutions, (2) review and reset leverage ratios for the first generation programs and establish metrics, (3) arrange additional sources of loan loss reserve funds, (4) build the secondary market for EE and RE loan portfolios, and (5) link clean energy finance programs to other state government development, finance, and financial system support/reform initiatives.

### *8 Clean Energy Lending From the Financial Institution Perspective*

Because clean energy loan programs are new and have very little history, a financial institution must consider many factors before committing capital for investments. The first half of Chapter 8 poses a series of questions that potential primary or secondary FIs will ask grantees when considering EE/RE lending products, an LRF, and other enhancements. An explanation of why those questions are important follows. The second half of the chapter presents the pertinent information a secondary investor must have before assuming EE loan bundles from a primary lender. It also briefly addresses two major risks investors perceive when considering investing in clean energy lending programs.

### *9 Implementation Process Flow*

Flow charts outlining energy efficiency and renewable energy finance program implementation processes for primary and secondary lenders appear in Chapter 9.

### *10 Resource Requirements*

Many resources are necessary to maintain a successful and sustainable EE/RE program. Chapter 10 breaks these resources down into five categories: staffing, information sharing, consultants, legislative rulings, and legal approvals. The staffing section defines the necessary positions for successful implementation of the program. Proper information sharing is described as two-way communication, one way through federal, state and local government guidance on the distribution and use of funds and the second way through clear reporting from the grantees. The roles of consultants can vary, depending on individual program budgets. Legislative rulings also vary; some are only suggestive while others are required. Legal approvals are broken down into federal, state, and local laws. All lending programs must comply with statutory law**.**

### *11 Reporting and M&V; Continuous Improvement*

This chapter is in review at DOE so is not included in the Finance Guide, Third Edition.

### *12 Clean Energy Finance for the Large Commercial Sector: Structures and Strategies*

Chapter 12 reviews several financing structures and related uses of ARRA funds that are being developed to finance large commercial sector building projects for clean energy improvements. The rationale for making the improvements and the gaps in financing options are presented, along with how ARRA-supported local government EE/RE financing programs can help fill the gaps and overcome barriers. The financing structures, including the role of Energy Service Companies (ESCOs) and tax-exempt bonds for nonprofit organizations and industries, are explained. The chapter concludes with a discussion of the uses of ARRA funds in the commercial sector and ARRA compliance guidelines.

### *13 Commercial Property-Assessed Clean Energy (PACE) Financing*

Introducing the new, innovative mechanisms for financing EE/RE improvements on private property, this chapter covers commercial Property-Assessed Clean Energy (PACE) programs. PACE programs allow local governments, when authorized by state law, to fund energy improvements on commercial and residential properties. The first section summarizes key advantages of PACE along with some disadvantages; it is followed by explanations of a 13-step process for launching a commercial PACE program. General PACE resources and specific sources for commercial PACE round out the chapter.

### *14 Small Business Financing Options for Clean Energy Projects*

Chapter 14 defines a small business, reviews the common legal small business structures, and presents the elements necessary for a successful small business financing program. This chapter also reviews traditional financing options available to small businesses for clean energy projects outside of ARRA, and ways grantees can use ARRA funds to facilitate loans for EE/RE projects in the small business sector. Determining credit risks, loan guarantees from the U.S. Small Business Administration, and Community Development Financial Institution lending are additional topics covered.

### *15 Contracts, Agreements, and Other Resources*

Chapter 15 has helpful materials for grantees and technical assistance providers to use in developing state and local financing programs. Included are three DOE templates: (1) an FI Request for Proposal, (2) an LRF Agreement, and (3) a Program Agreement. Also included are a Sample RFP from the City of Independence, Missouri, and a Sample LRF Agreement from the Michigan SAVES program.

### *16 Summary of Additional Resources on Financing*

Twenty-two additional resources for those interested in more information on clean energy lending programs are listed in Chapter 16.